

## CLAIMS

The invention claimed is:

1. A system comprising:
  - a housing;
  - a circuit board supported in the housing;
  - a plurality of slot connectors supported on the circuit board;
  - a first card in one of the slot connectors;
  - a first circuit component mounted on the first card;
  - a second card in another one of the slot connectors;
  - a second circuit component mounted on the second card; and
  - an optical interconnect coupling the first card to the second card, the first circuit component being configured to communicate with the second circuit component via the optical interconnect, whereby the optical interconnect does not pass through the slot connectors so that interference that could otherwise be caused by signals to and from the first circuit component is impeded.
2. A system in accordance with claim 1 wherein the optical interconnect comprises a fiber optic cable.

3. A system in accordance with claim 1 wherein the optical interconnect comprises an optical connector on the first card configured to convert between electrical signals and optical signals, and wherein the computer further includes circuit traces on the first card coupling the optical connector to the first circuit component.

4. A system in accordance with claim 1 wherein the optical interconnect comprises an optical connector on the second card configured to convert between electrical signals and optical signals, and wherein the computer further includes circuit traces on the second card coupling the optical connector to the second circuit component.

5. A system in accordance with claim 1 wherein the optical interconnect comprises a first optical connector, on the first card, configured to convert between electrical signals and optical signals, wherein the computer further includes circuit traces on the first card coupling the first optical connector to the first circuit component, wherein the optical interconnect further comprises an optical connector, on the second card, configured to convert between electrical signals and optical signals, the computer further including circuit traces on the second card coupling the second optical connector to the second circuit component.

6. A system in accordance with claim 1 wherein the second circuit component comprises a DRAM.

7. A system in accordance with claim 1 wherein the second circuit component comprises a synchronous link type DRAM.

8. A system comprising:

- a housing;
- a circuit board supported in the housing;
- a slot connector supported on the circuit board;
- a first circuit component supported by the circuit board;
- a card removably received in one of the slot connectors;
- a second circuit component mounted on the card; and
- an optical interconnect coupling the card to the circuit board, the first circuit component being configured to communicate with the second circuit component via the optical interconnect, whereby the optical interconnect does not pass through the slot connectors so that interference that could otherwise be caused by signals to and from the first circuit component is impeded.

9. A system in accordance with claim 8 wherein the first circuit component is hard wired to the circuit board.

10. A system in accordance with claim 8 and further comprising a ZIF connector mounted to the circuit board, and wherein the first circuit component is removably received in the ZIF connector.

11. A system in accordance with claim 8 wherein the optical interconnect comprises an optical connector on the card configured to convert between electrical signals and optical signals, and an optical connector on the circuit board configured to convert between electrical signals and optical signals.

12. A system in accordance with claim 8 wherein the first circuit component comprises a DRAM.

13. A system in accordance with claim 8 wherein the first circuit component comprises a synchronous link type DRAM.

14. A computer comprising:

- a housing;
- a circuit board supported in the housing;
- a plurality of connectors supported on the circuit board;
- a first card in a first one of the connectors;
- a processor supported by the first card;
- a second card in a second one of the connectors;
- a synchronous link DRAM memory supported by the second card;
- a power supply in the housing;
- conductors coupling the power supply to the processor via the first connector, the conductors including circuit traces on the first card;
- conductors coupling the power supply to the memory via the second connector, the conductors including circuit traces on the second card; and

an optical interconnect coupling the processor to the memory for data communications, the optical interconnect being within the housing, in use, wherein the optical interconnect does not pass through the connectors.

15. A computer in accordance with claim 14 and further comprising a third card in a third one of the connectors, a co-processor supported by the third card, and an optical interconnect coupling the co-processor to the processor.

16. A computer in accordance with claim 15 and further comprising conductors coupling the power supply to the co-processor via the third connector, the conductors including circuit traces on the third card.

17. A computer in accordance with claim 15 wherein the co-processor is a math co-processor.

18. A computer in accordance with claim 15 and further including an electronic device in the housing capable of generating electromagnetic interference, and wherein the optical interconnect shields communications between the processor and the memory from the electromagnetic interference.

19. A computer comprising:

- a housing;
- a circuit board supported in the housing;
- a plurality of connectors supported on the circuit board;
- a first card in a first one of the connectors;
- a first integrated circuit supported by the first card;
- a second card in a second one of the connectors;
- a second integrated circuit supported by the second card;
- a power supply in the housing;
- conductors coupling the power supply to the first integrated circuit via the first connector, the conductors including circuit traces on the first card;
- conductors coupling the power supply to the second integrated circuit via the second connector, the conductors including circuit traces on the second card;
- and
- an optical interconnect coupling the first integrated circuit to the second integrated circuit for data communications, the optical interconnect being within the housing, in use, wherein the optical interconnect does not pass through the connectors.

20. A computer in accordance with claim 19, and further comprising a third card in a third one of the connectors, a co-processor supported by the third card, and an optical interconnect coupling the co-processor to the processor wherein the first integrated circuit comprises a processor, and wherein the second integrated circuit comprises a memory.

21. A computer in accordance with claim 20 and further comprising conductors coupling the power supply to the co-processor via the third connector, the conductors including circuit traces on the third card.

22. A computer in accordance with claim 20 wherein the co-processor is a math co-processor.

23. A computer in accordance with claim 20 and further including an electronic device in the housing capable of generating electromagnetic interference, and wherein the optical interconnect shields communications between the processor and the memory from the electromagnetic interference.

24. A method of assembling a system, the method comprising:  
supporting a circuit board in a housing;  
supporting a plurality of slot connectors on the circuit board;  
mounting a first circuit component on a first card;  
inserting the first card into a first one of the slot connectors;  
mounting a second circuit component on a second card;  
inserting the second card into a second one of the slot connectors; and  
flexibly optically coupling the first card to the second card for optical communications between the first circuit component and the second circuit component, whereby the flexible optical interconnect does not pass through the slot connectors so that interference that could otherwise be caused by signals to and from the first circuit component is impeded.

25. A method of assembling a system in accordance with claim 24 wherein optically coupling the first card to the second card comprises using a fiber optic cable.

26. A method of assembling a system in accordance with claim 24 wherein optically coupling the first card to the second card comprises supporting an optical connector on the first card to convert between electrical signals and optical signals, and forming circuit traces on the first card to couple the optical connector to the first circuit component.

27. A method of assembling a system in accordance with claim 24 wherein optically coupling the first card to the second card comprises supporting an optical connector on the second card to convert between electrical signals and optical signals, and forming circuit traces on the second card to couple the optical connector to the second circuit component.

28. A method of assembling a system in accordance with claim 24 wherein optically coupling the first card to the second card comprises supporting an optical connector on the first card to convert between electrical signals and optical signals, forming circuit traces on the first card to couple the optical connector to the first circuit component, supporting an optical connector on the second card to convert between electrical signals and optical signals, and forming circuit traces on the second card to couple the optical connector to the second circuit component.



29. A method of assembling a system in accordance with claim 24 wherein mounting the second circuit component comprises mounting a DRAM on the first card.

30. A method of assembling a system in accordance with claim 24 wherein mounting the second circuit component comprises mounting a synchronous link type DRAM on the first card.

31. A method comprising:

- supporting a circuit board in a housing;
- supporting a plurality of slot connectors on the circuit board;
- supporting a processor on a first card having an edge connector;
- inserting the edge connector of the first card into a first one of the slot connectors to support the first card from the circuit board;
- providing a second card having an edge connector configured for sliding receipt in a second one of the slot connectors;
- supporting a synchronous link DRAM memory on a second card having an edge connector;
- inserting the edge connector of the second card into a second one of the slot connectors to support the second card from the circuit board;
- supporting a power supply in the housing;
- coupling the power supply to the processor via the first slot connector, the coupling including using circuit traces on the first card extending from the edge connector of the first card toward the processor;

coupling the power supply to the memory via the second slot connector, the coupling including using circuit traces on the second card extending from the edge connector of the second card toward the memory; and

optically coupling the processor to the memory for data communications using an optical interconnect within the housing, wherein the optical interconnect does not pass through the slot connectors.

32. A method in accordance with claim 31 and further comprising supporting a co-processor on a third card having an edge connector, and optically coupling the co-processor to the processor.

33. A method in accordance with claim 32 and further comprising coupling the power supply to the co-processor via the third slot connector, the coupling comprising using circuit traces on the third card extending from the edge connector of the third card toward the co-processor.

34. A method in accordance with claim 32 wherein supporting a co-processor comprises supporting a math co-processor on the third card.

35. A method comprising:

- supporting a circuit board in a housing;
- supporting a plurality of slot connectors on the circuit board;
- supporting a first integrated circuit on a first card having an edge connector;
- inserting the edge connector of the first card into a first one of the slot connectors to support the first card from the circuit board;
- providing a second card having an edge connector configured for sliding receipt in a second one of the slot connectors;
- supporting a second integrated circuit on a second card having an edge connector;
- inserting the edge connector of the second card into a second one of the slot connectors to support the second card from the circuit board;
- supporting a power supply in the housing;
- coupling the power supply to the first integrated circuit via the first slot connector, the coupling including using circuit traces on the first card extending from the edge connector of the first card toward the first integrated circuit;
- coupling the power supply to the second integrated circuit via the second slot connector, the coupling including using circuit traces on the second card extending from the edge connector of the second card toward the second integrated circuit; and
- optically coupling the first integrated circuit to the second integrated circuit for data communications using an optical interconnect within the housing, wherein the optical interconnect does not pass through the slot connectors.

36. A method in accordance with claim 35 and further comprising supporting a co-processor on a third card having an edge connector, and optically coupling the co-processor to the processor, wherein the first integrated circuit comprises a processor, and wherein the second integrated circuit comprises a memory.

37. A method in accordance with claim 36 and further comprising coupling the power supply to the co-processor via the third slot connector, the coupling comprising using circuit traces on the third card extending from the edge connector of the third card toward the co-processor.

38. A method in accordance with claim 36 wherein supporting a co-processor comprises supporting a math co-processor on the third card.

39. A system comprising:

a housing;

a circuit board supported in the housing;

a plurality of slot connectors supported on the circuit board;

a first card configured for sliding receipt in one of the slot connectors;

a first circuit component mounted on the first card;

a second card configured for sliding receipt in one of the slot connectors;

a second circuit component mounted on the second card; and

an optical interconnect coupling the first card to the second card, the first circuit component being configured to communicate with the second circuit component via the optical interconnect, whereby the optical interconnect does not pass through the slot connectors so that interference that could otherwise be caused by signals to and from the first circuit component is impeded.

40. A system in accordance with claim 39 wherein the optical interconnect comprises a fiber optic cable.